

### REMARKS/ARGUMENTS

In the Final Office Action mailed on 6 July 2006 and the Advisory Action of 1 September 2006, the Examiner rejected claims 1-8, 10-11, and 13-32. Applicant filed a request for Pre-Appeal Brief Review on 26 September 2006, and a Notice of Panel Decision was mailed 9 November 2006. Applicant is now submitting an RCE with an amendment of claims 1 and 16. Support for the amendment can be found, for example, at least in paragraphs 42-48 and FIGs. 7-10. Claims 9, 12, and 33-36 had previously been canceled, and claims 1-8, 10-11, and 13-32 are presently under consideration. Applicant respectfully requests reconsideration of the application by the Examiner in light of the above amendments and the following remarks.

Applicant respectfully traverses the rejection of claims 1-7, 10-11, and 13-32 under 35 USC 102(e) on Nishimura et al. US6828078 and claim 8 under 35 USC 103(a) on Nishimura. Applicant has split the discussion of the rejections into sections to discuss the two independent claims in turn.

#### Claims 1-7, 10-11, and 13-15

Applicant respectfully submits that Nishimura does not teach or disclose the independent claim 1 recitations of:

irradiating the exposed area of the layer to polymerize the polymerizable composite in the exposed area, and volatilizing the uncured monomer in the unexposed area by diffusing some uncured monomer from the unexposed area towards the exposed area to form the index contrast region of the waveguide.

Applicant continues to submit that Nishimura describes generation of a "low RI (reactive index)" area by locally generating (by photo patterning) an acid which decomposes the high RI component (A) which then must be removed from the system by volatilization. The decomposition only reduces the molecular weight of the high RI component so it can volatilize - the decomposition does not change the RI. Once volatilized, the region has less of the high RI component-A and therefore a lower RI. Decomposition itself does not change the RI of component-A or the region. The RI only decreases when component-A is removed. The degree of decomposition of component-A and resulting amount volatilized (and subsequent change in RI) probably is effected by the amount of photoacid present, and the photoacid may be able to move around (or diffuse) a bit, but decomposition/volatilization of component-A is what causes the RI change. More specifically, **uncured monomers are not described or present in Nishimura's patent, and no diffusion is described as forming index contrast areas.**

Additionally, claim 1 includes the recitation of "wherein the polymerizable composite comprises a polymer binder and sufficient quantities of an uncured monomer to diffuse into the exposed area of the layer and form the index contrast region." Applicant can find no disclosure of this recitation in Nishimura.

Applicant notes that the Advisory Action states:

Applicant submits that the decomposition of Nishimura only reduces the MW of the high RI component so that it can volatilize, but that the decomposition does not change the RI. However, claim 1 does not require that the RI be changed, but merely that uncured monomer be volatilized to diffuse to form the index contrast region. *It is submitted that once the high RI material is decomposed, this decomposition product becomes an uncured monomer which does diffuse to some extent to form the instant index contrast region.* (emphasis added)

Applicant respectfully traverses the assertion in the Office action that high RI component A would constitute an uncured monomer. If anything, RI component A is more like a solvent (which evaporates from the system) and more particularly resembles a solvent used to cast a composite blend on a substrate. Even if the RI component A was somehow construed to resemble an uncured monomer, however, the argument ignores the claim recitation about the composition of the polymerizable composite comprising the uncured monomer. If the monomer is not formed until after several steps, the polymer composite itself did not comprise it. Instead, the layer resulting after the patterning, irradiating, and volatilizing would comprise it.

Accordingly, Applicant respectfully submits that claim 1, and claims 2-8, 10-11, and 13-15 which depend therefrom, define allowable subject matter over Nishimura.

#### Claims 16-32

Applicant respectfully submits that Nishimura does not teach or disclose the independent claim 16 recitations of (with emphasis added):

patterning the layer to define an exposed area and an unexposed area of the layer, one portion of the unexposed area comprising the core region and **another portion of the unexposed area comprising a diffusion source region**, irradiating the exposed area of the layer to polymerize the polymerizable composite in the exposed area, and volatilizing the uncured monomer in the core **and diffusion source** regions to diffuse some uncured monomer from the unexposed area towards the exposed area and form the index contrast region of the waveguide.

The volatilizing uncured monomer recitation and the fact that the composite includes an uncured monomer are discussed above with respect to claim 1. Claim 16 additionally includes the recitation of: one portion of the unexposed area comprising the core region and another portion of the unexposed area comprising a diffusion source region. Applicant can find no reference to a diffusion source region in Nishimura. These are described in Applicant's specification with respect to at least FIGs. 14-19, for example.

With respect to claim 16 the Advisory Action states:

Concerning claim 16, once the high RI material is decomposed, such constitutes a diffusion source region.

Again, however, this analysis appears to disregard a portion of the claim 16 (patterning the layer to define an exposed area and an unexposed area of the layer, one portion of the unexposed area comprising the core region and another portion of the unexposed area comprising a diffusion source region). Photo-

patterning in Nishimura occurs before decomposition/volatilization, so to say that the decomposition provides the diffusion source region would not seem to teach or suggest patterning of such regions.

Accordingly, Applicant respectfully submits that claim 16 and claims 17-32 which depend therefrom define allowable subject matter over Nishimura.

Summary

In summary, Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Should the Examiner believe that anything further is needed to place the application in better condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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